

the University which will interfere in the least with this. He is left, if anything, more freedom than heretofore to pursue his explorations in Mexico or elsewhere. If in years to come he wishes to turn from that work there is provision that he may further develop herbarium or other botanical work at home, but it is distinctly provided that the work at the University is not to interfere with his freedom in his work as a botanical explorer. He is at present in Mexico and will remain there until some time in the autumn. Upon his return the herbarium will be finally installed in its new quarters.

UNIVERSITY OF VERMONT.

AN ALGOLOGIST'S VACATION IN EASTERN MAINE.

F. S. COLLINS.

THE annual meeting of the Josselyn Botanical Society of Maine, in July, 1902, gave me an excellent excuse for visiting some parts of the coast that were outside the range of my previous explorations; the results of the visits were very satisfactory, and as far as they include new algae or critical matters in regard to already known species, will probably be published a little later; the present article is intended to give a more general account of the algological character of the places visited.

The first point at which collecting was done was Cutler, very near the eastern boundary of the United States. The attractiveness of this place, and the curiously boreal character of the land flora are known to the readers of RHODORA from the interesting account by Dr. Kennedy of his visit in 1901.¹

The place is everyway as attractive as represented, and the northern character of the marine flora is marked. Arctic and subarctic marine floras are characterized by many individuals, often of large size, but of comparatively few species. The flora of the Cutler shore was of this character, but owing to the considerable variety of stations — exposed coast, quiet harbor, and salt marsh — the number

¹ RHODORA, Vol. IV, p. 23.

of species represented is relatively large. Specially noticeable here was the *Laminaria* formation, near and below low water mark. *Laminaria stenophylla* occurred here in a considerable colony just at low water mark, on a smooth, steeply sloping rock, exposed to the full force of the waves. At the time I discovered this colony the sea was exceptionally quiet, and I secured as much as I could take away in my bag. When I returned for more, the next day at low tide, the waves were washing up on the place where I must stand. Any good botanist would cheerfully take a drenching for the sake of a good specimen, but in this case not merely a drenching but a carrying out to sea was fairly likely, and the needed specimens had to be given up.

Chorda tomentosa was abundant in the harbor, growing in pretty deep water, and stretching along the surface at low tide, as *C. Filum* does in most places. The plant is not uncommon all along the New England coast, but a plant two feet long is a large specimen, usually; the original description by Areschoug says "Planta usque metrum longa"; but here, growing in dense tufts, the plants often become 15 feet long, and with dense hairs standing out appear as stout as one's finger.

Another plant occurring here in individuals of unusual size was *Ilea fulvenscens*. It is a common species in its special habitat, but usually in fronds so small as to be noticeable only in the mass. Here it had the habit of *Enteromorpha intestinalis*, and fronds over a yard long and half an inch in diameter were found. It seems to occur only where it can have alternately fresh and salt water; the Cutler locality is exceptionally favorable, at the mouth of a considerable brook. At low tide the stream runs briskly over the stones on which it grows; at high tide they are under several feet of salt water. *Ilea fulvenscens* is nearly related to *Enteromorpha*, in which it has sometimes been included; it is chiefly distinguished by the very gelatinous cell wall, the cells arranged in distinct groups of fours. These characters seem to be connected with its peculiar habitat, and occur in other plants exposed to fresh water, *Monostroma quaternarium*, for instance, otherwise hardly distinguishable from the marine *M. latissimum*. These characters of gelatinous membrane and cells in groups of fours appear in a still greater degree in the genus *Tetraspora*, common in fresh water everywhere, but not found in the sea.

Plumaria elegans grew here in luxuriant specimens, on shaded perpendicular or overhanging rocks, sometimes five or six feet above low water mark. I have never found specimens of such large size on the Massachusetts coast, where the plant grows in similar stations, but large specimens are abundantly washed ashore at Newport, Rhode Island, though the plant is never found attached above low tide level. And during more than twenty years collecting, I have never seen a specimen washed ashore, north of Cape Cod.

Machias, where the Josselyn Society meeting was held, is not a station for marine algae, but excursions were made to two points on the shore, Roque Bluffs and Point of Main, including a visit from the latter to Starboard Island. In crossing the bar which at low water makes a peninsula of the island, I saw plants of *Laminaria platymeris* growing on rocks and large pebbles, in some cases with stipes so short that the lamina seemed sessile. As noted by Setchell¹ this plant, on the Massachusetts coast, is usually epiphytic on larger Laminarias, but along the eastern half of the Maine coast it usually grows on stones. What is commonly known as *Delesseria alata* was found in some abundance at Starboard Island, washed up from below low water mark; the plants quite luxuriant. On the American coast this species seems specially a northern plant, growing smaller as we go south, seldom occurring south of Nahant. In Europe what passes for the same species is most luxuriant in the English Channel, in company with species here found only south of Cape Cod, and others not found north of North Carolina. It may be that the European and the American plants are distinct.

Rhodophyllis dichotoma has been reported from New England only from Cape Ann and Marblehead. As it occurs at Greenland and Labrador, it might be expected anywhere on the Maine coast, but it was interesting to have its presence there established by specimens in the collection of Miss Lucy Longfellow of Machias, secured at some of the islands near by. When at Portland, the week following the meeting, I found specimens in the collection of the Portland Natural History Society, gathered in Portland harbor, by the late C. B. Fuller, then curator of the society.

The relations between things apparently distinct are sometimes important. If the steamboat wharf at Machiasport had not been

¹ RHODORA, Vol. II, p. 143.

or only very slightly known; and I am convinced that many more are only waiting for me to call again and make their acquaintance.

MALDEN, MASSACHUSETTS.

THE DISTINCTIVE FEATURES OF *IRIS HOOKERI*.

J. FRANKLIN COLLINS.

(Plate 39.)

IN the February RHODORA¹ Dr. G. G. Kennedy records the finding of *Iris Hookeri*, Penny; at Cutler, Maine. On the second of July, 1902, Dr. Kennedy, Messrs. E. F. Williams, M. L. Fernald and the writer found an abundance of the plant at the station mentioned. Upon comparison with *I. versicolor*, which grew in close proximity, several important differences were noticed, which as emphasizing the distinctness of the species seem worthy of record.

I. Hookeri has narrower leaves with more prominent nerves, it is more strict and less glaucous than *I. versicolor*, and it grows in situations where the drainage is apparently better — e. g. along the edges of gravelly beaches and at the crests of the ocean cliffs where the plants are often subjected to baths of salt spray. The spathes are usually greener and appear to be inwardly falcate; really however, they are conduplicate, strongly pointed, and incurved throughout the upper part. At the base the plant is more or less purplish and often there are purple flecks scattered along the lower portions of the leaves.

In the flower and fruit, however, the most distinctive characteristics are found. In *I. Hookeri* the inner segments of the perianth (or petals) are totally different from the corresponding parts of *I. versicolor*. This contrast is well brought out in the accompanying plate, in which figures 4, 5, 6, and 7 represent petals of *I. Hookeri* and figure 8 a petal of *I. versicolor*, — all natural size. The petals in the former are not only very small and comparatively inconspicuous, but have their edges involute below or even rolled up so as to form a hollow tube-

¹ RHODORA, iv. 23 (1902).

like structure. These vary more or less but are seldom larger than represented in the plate, which shows three of the different forms noticed. The two petal-like lobes at the apex of each style-branch are in *I. Hookeri* usually spreading rather than slightly overlapping as was noticed to be the case in specimens of *I. versicolor* observed at Cutler.

The fruit of *I. Hookeri*, which matures fully two weeks earlier than that of *I. versicolor*, is broader, shorter, and thinner-walled. It is always beakless and is sometimes rather bluntly triangular while at others, especially when young, it is inclined to be sharply angled.

The plants grow in great abundance on the farm of Mr. W. R. Corbett of Cutler, who told us that since Dr. Kennedy called his attention to the two species last year he had been watching them and now had no difficulty in telling them apart, even in the dark, by simply feeling of the pods. It is not easy to imagine a more beautiful sight than that formed by thousands of these plants growing as they do along the summits of the cliffs, often making blue areas which can be seen for a long distance.

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EXPLANATION OF PLATE 39.—*Iris Hookeri*: fig. 1, flowering branch; fig. 2, leafy branch; fig. 3, bud; figs. 4, 5, 6, petals; fig. 7, side view of petal; fig. 9, young fruit; fig. 10, cross-section of the same; fig. 11, older fruit; fig. 12, cross-section of the same. *Iris versicolor*: fig. 8, petal.

NOTES ON VERMONT MOSSES.

A. J. GROUT.

SINCE the publication of the supplement to my Vermont Mosses I have spent two summers in the state and have collected copiously each season.

I have found several species not before reported from the state and have also been able to verify several of Frost's doubtful reports so that it seems probable that his list is entirely reliable.

The collections from Newfane have been of special interest to me as they are mostly from places familiar to me from childhood and over which I had passed times without number.

SPECIES NEW TO THE STATE.

Fissidens incurvus Schwaegr. On stones in brook, Newfane.

Ditrichum vaginans (Sulliv.) Hampe. Newfane.

Orthotrichum sordidum S. & L. Butternut tree in dooryard, Newfane.

Bryum affine (Bruch.) Lindb. Mt. Holly, Eggleston.

B. pseudotriquetrum (Hedw.) Schwaegr. Willboughby, Faxon.

Thuidium microphyllum (Sw.) Best. Decayed log in moist woods, Newfane.

Amblystegium subtile (Hedw.) B. & S. Bark at base of maple tree, Stratton.

Hylocomium brevirostre (Ehrh.) B. & S. North exposure of Baker Brook Ravine. On rocks and soil, Newfane.

Hylocomium squarrosum (L.) B. & S. Cold swamps, altitude of 1500–2000 ft., Stratton, Stowe, Johnson.

Hypnum fertile Sendt. Rotten log, north exposure of Baker Brook Ravine.

From the descriptions I had supposed this species to be near *H. reptile*, but it is much more likely to be mistaken for *H. crista-castrensis* from which it differs in its more slender habit. Sterile it would readily be confused with *H. imponens* but it is lighter in color and has strongly curved capsules.

Hypnum fluitans var. *Atlanticum* Renauld in the Journal of Botany for August, 1901. This new variety was described from Britain and the continent so that this is the first and only collection from America. The specimens were collected in swampy places under the spruces near the Summit House, Mt. Mansfield. The original description and notes were reprinted in full in the March, 1902, BRYOLOGIST. The specimens were determined by M. Renauld.

Hypnum pallescens (Hedw.) B. & S. Bases of fir stumps and trees in mountain woods. Mt. Mansfield, Stratton. Closely allied to *H. reptile* and sometimes found growing in the same locality. But *H. pallescens* is a mountain species with shorter capsules, leaves less closely appressed and strongly secund at the tips of the branches.

Hypnum Patientiae Lindb. Nearly if not quite all of the Vermont mosses previously referred to *H. pratense* should be referred here. This species is not rare but is likely to be confused with *H. curvifo-*